

**What is claimed is:**

1. A scheduling apparatus performing job scheduling of a parallel computer system having a plurality of processor elements, comprising:

a determining device determining whether or not to move a first job currently being executed by a processor element to a different processor element; and

an assigning device assigning a second job currently being executed to the plurality of processor elements so that a migration process of the first job is performed, if it is determined that the first job is to be moved to the different processor element.

2. The scheduling apparatus according to claim 1, further comprising

a monitoring device monitoring a load state of the plurality of processor elements, wherein

if a load distribution imbalance occurs between the plurality of processor elements, said assigning device assigns the second job to the plurality of processor elements.

3. The scheduling apparatus according to claim 1, wherein:

said determining device generates a job information table including information of the second job, determines a job to be moved among jobs within the job information table, and generates a relocation list including information of a job relocated on the plurality of processor elements; and

said assigning device assigns the second job to the plurality of processor elements based on the relocation list.

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4. The scheduling apparatus according to claim 1, wherein

said determining device calculates a cost required for the migration process of the first job, and determines whether or not to move the first job to the different processor based on a calculated cost.

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5. The scheduling apparatus according to claim 1, wherein

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said determining device estimates an execution cost of the first job based on execution history information of the first job, and determines whether or not to let the first job migrate to the different processor by using an estimated execution cost.

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6. A scheduling apparatus performing job scheduling of a parallel computer system having a plurality of processor elements, comprising:

- a static scheduling device performing scheduling  
5 of a job in a static state; and
- a dynamic scheduling device performing job scheduling of a job in a running state.

7. A scheduling apparatus performing job  
10 scheduling of a parallel computer system having a plurality of processor elements, comprising:

- a static scheduling device performing scheduling in a case where a configuration of the parallel computer system is fixed; and
- 15 a dynamic scheduling device performing scheduling in a case where the configuration of the parallel computer system is changeable.

8. A parallel computer system having a  
20 plurality of processor elements, comprising:

- a determining device determining whether or not to move a first job currently being executed by a processor element to a different processor element; and
- a scheduling device performing scheduling of a  
25 second job currently being executed so that a migration

process of the first job is performed, if it is determined that the first job is to be moved to the different processor.

- 5           9.     A computer-readable storage medium on which is recorded a program for causing a computer which perform job scheduling of a parallel computer system having a plurality of processor elements to execute:

10           determining whether or not to move a first job currently being executed by a processor element to a different processor; and

15           assigning a second job currently being executed to the plurality of processor elements so that a migration process of the first job is performed, if it is determined that the first job is to be moved to the different processor.

- 20           10.    A computer-readable storage medium on which is recorded a program for causing a computer which performs job scheduling of a parallel computer system having a plurality of processor elements to execute

a scheduling process into which static scheduling and dynamic scheduling are combined.

- 25           11.    A scheduling apparatus performing job

scheduling of a parallel computer system having a plurality of processor elements, comprising:

determining means for determining whether or not to move a first job currently being executed by a processor element to a different processor element; and

assigning means for assigning a second job currently being executed to the plurality of processor elements so that a migration process of the first job is performed, if it is determined that the first job is to be moved to the different processor element.

12. A scheduling apparatus performing job scheduling of a parallel computer system having a plurality of processor elements, comprising:

static scheduling means for performing scheduling of a job in a static state; and

dynamic scheduling means for performing scheduling of a job in a running state.

13. A scheduling apparatus performing job scheduling of a parallel computer system having a plurality of processor elements, comprising:

static scheduling means for performing scheduling in a case where a configuration of the parallel computer system is fixed; and

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dynamic scheduling means for performing scheduling in a case where the configuration of the parallel computer system is changeable.

5           14. A propagation signal for propagating a computer program to a computer, the program causing the computer to perform:

            determining whether or not to move a first job currently being executed by a processor element to a  
10     different processor; and

            assigning a second job currently being executed to the plurality of processor elements so that a migration process of the first job is performed, if it is determined that the first job is to be moved to the different processor  
15     element.

            15. A propagation signal for propagating a computer program to a computer, the program causing the computer to perform

20           executing a scheduling process into which static scheduling and dynamic scheduling are combined.

            16. A scheduling method performing job scheduling of a parallel computer system having a  
25     plurality of processor elements, comprising:

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determining whether or not to move a first job currently being executed by a processor element to a different processor element; and

5        assigning a second job currently being executed to the plurality of processor elements so that a migration process of the first job is performed, if it is determined that the first job is to be moved to the different processor element.

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